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ABSTRACT

Arguments in favor of a particular decompositional approach to word meaning are presented and contrasted with other theories. The approach in question uses semantic markers to represent word meanings. The semantic marker analysis of English causative verbs is outlined and illustrated, showing how such an analysis could account for the semantic properties and relations of sentences in which the verbs occur, and how it could account for some of the psychological evidence reported in the literature. A list of references is included. (MSE)

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A DEFINITIONAL ANALYSIS OF ENGLISH CAUSATIVE VERBS; ITS LINGUISTIC AND PSYCHOLINGUISTIC BASIS

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Recently in the philosophy of language there has been a controversy concerning the proper way to represent the meanings of words. The question basically is whether word meanings should be represented decompositionally as composed of component concepts that together make up their meanings in the manner of definitions, or whether the meanings of words are best represented as discrete units without any internal structure. In a number of books and articles Jerry Fodor and his colleagues have argued in favor of the non-decompositional approach (see, for example, Fodor, Fodor, and Garrett, 1975; Fodor, Garrett, Walker, and Parkes, 1980; and Fodor, 1981). However, I have presented arguments (Gonsalves, 1984 and forthcoming in Cognition) in favor of a particular decompositional approach, namely that of Jerrold J. Katz (Katz, 1972, and Katz, 1977), which uses semantic markers to represent word meanings. The purpose of this paper is to briefly present the outlines of a semantic marker analysis of English causative verbs, showing how such an analysis could account for the semantic properties and relations of sentences in which they occur, and also showing how they could account for some of the psychological evidence reported in the literature.

Let us begin by looking at a semantic marker definition of the verb "to break":

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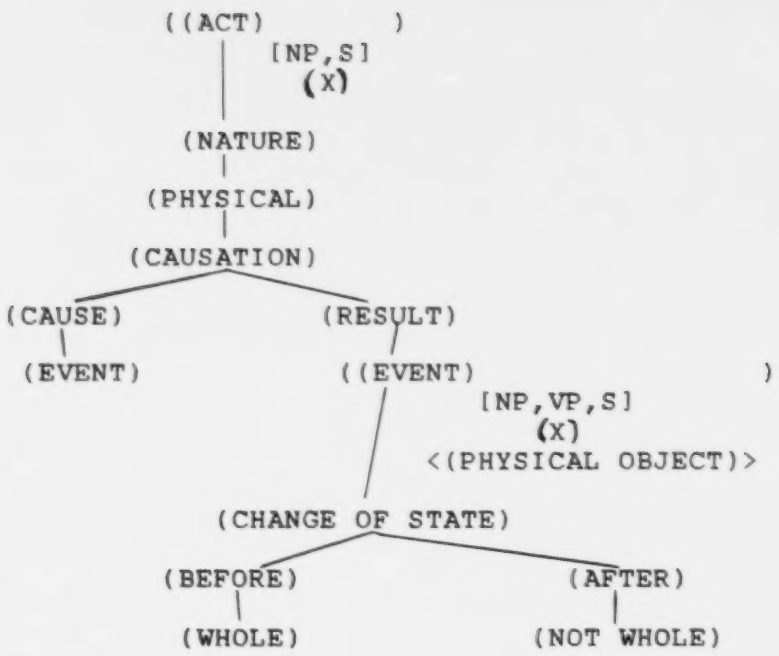
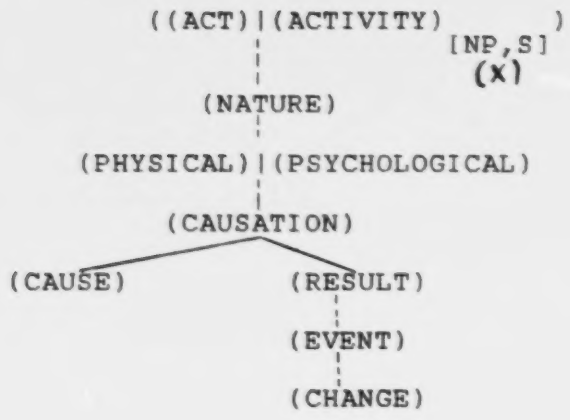


First, I should note that while Ravin (1987) represents this sense of the verb "to break" as an event with the concept of an act left indeterminate; I have chosen to represent this sense as above, opting for a broader conception of an act. As it stands, then, this marker indicates that the verb "to break" denotes a physical act of causation which has a cause and a result. The cause is some event, and the result is an event which is a change of state from a state of being whole to a state of being not whole. The 'NP,S' below the 'ACT' marker picks out the subject of the verb to fill this argument place of the act, which is the argument place indicating the agent of the act. The 'NP,VP,S' above the 'CHANGE OF STATE' marker picks out the object of the verb to fill this argument place, which is the argument place indicating the recipient of the act. These argument places are filled by the projection rule so that for the sentance "The woman broke the vase" we would have a representation similar to that given above, except that in place of the 'X' below 'NP,S' we would have the meaning of the expression "the woman," and in place of the 'X' below 'NP,VP,S' we would have the meaning of the expression 'the vase.'

Now this marker has certain elements common to all verbs that denote a causative act. In fact, the following schema represents what such verbs have in common:

2.



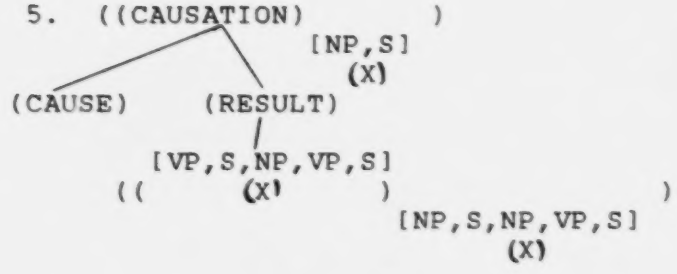
In addition, phrasal causatives that denote just causation involve just the substructure from the marker CAUSATION down, and verbs denoting an event of some type of change will involve just the structure from EVENT down. Consider the following, for example:

3. The woman caused the vase to break.

4. The vase broke.

Clearly, these are both entailed by "The woman broke the vase." These entailment relations would be captured in ST by the containment of the representations of (3) and (4) within the representation of "The woman broke the vase." The verb "to cause" would get the following representation:

5.



And the intransitive form of "to break" gets the representation from the marker EVENT down in (1).

Apart from helping to explain the entailment relationships between these sentences, the above account, particularly the schema in (2), helps to explain the acquisition of such concepts in terms of the acquisition of a single basic framework which only has to be specified further in order for one to acquire the meanings of particular words. For example, Melissa Bowerman's study of her daughter's acquisition of causative verbs suggests that in the early stages of the acquisition of this framework it is used as the representation of a number of non-causatives, resulting in the type of creative error that Bowerman notes in such sentences as "Daddy go me around."

Besides entailment, ST is capable of capturing the other semantic properties and relations. Consider, for example, still using our markers for the verbs "to break" and "to cause," the following sentences:

6. Breaking something is causing it to become broken.

7. Breaking something is causing it to become whole.

8. John broke his afterimage.

Sentence (6) is a case of analyticity. An informal ST definition of this semantic property says that a sentence is analytic if the readings of each of its predicates is already contained in the readings of each of the corresponding terms. The reading of the predicate in (6) will be similar to the structure from CAUSATION down, while the reading of the term will be similar to the entire semantic marker, so that there is the relevant containment relation to account for the analyticity of (6).

Sentence (7) is a case of contradictoriness. An informal ST definition of this semantic property is that it is very much like analyticity except that the relationship between the reading of the predicate and that of the term is one of antonymy. Since the reading of the predicate here, "causing it to become whole," is just the structure below CAUSATION with WHOLE and NOT WHOLE reversed, this analysis would also account for the contradictoriness of (7).

Sentence (8) is a case of anomaly. An informal ST definition of this semantic property is that a sentence is anomalous just in case there is no resulting reading, probably because of a violation of one of the selection restrictions on the predicate. In this case, the selection restriction violated is the one that requires the recipient to contain the marker PHYSICAL OBJECT. Since "afterimage" does not contain this marker, the sentence fails to get a good semantic reading.

As to synonymy, given time we could examine how ST accounts for the synonymy relation between the following sentences.

9. The woman broke the vase.

10. The woman did something which was the cause of the vase breaking.

We would need a little additional apparatus to explain how the structure of (10) is built up compositionally out of its parts. Elsewhere I have provided an explanation of this type using the verb "to kill" which is completely analogous to this case. One of the results of this analysis was the finding that the notion of being the exclusive cause of the change seems to be a crucial part of the meanings of causative verbs. It is partly because of the absence of this concept that (11) is not synonymous to (9).

11. The woman caused the vase to break.

I would like to turn finally to the Fodor, Garrett, Walker, and Parkes study (henceforth FGWP), which claimed to have found evidence against the psychological reality of the definitional structures of causative verbs. The FGWP experiment made use of causative verbs and turned crucially on structures like the following, supposedly representing a definitional account of the meaning of the sentence "The woman broke the vase":

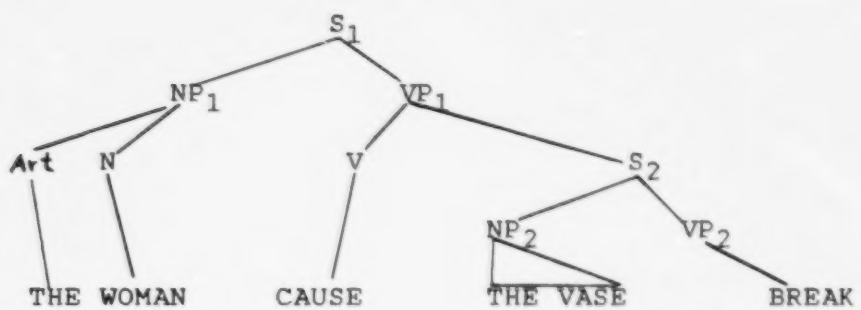


Figure One

FGWP note that while 'the woman' and 'vase' are "related as subject and object of the verb 'break' in the surface sentence . . . they are not so related in the putative semantic representation"--that is, as in the structure above. In other words, there is a structural shift in going from surface structure to meaning.

FGWP reasoned that if the structure in figure one was the correct representation of the meaning of (9), then the subject and object NPs in (9) should be judged by subjects-- who were

asked to judge the relative relatedness of pairs of words or phrases in sentences--as being less closely related than the subject and object NPs in sentences like (12) which does not have any structural shift:

12. John kicked Bill.

When subject and object NPs in sentences like (9) were judged to be just as related as subject and object NPs in sentences like (12), FGWP concluded that this was evidence against the definitional view of the meanings of such verbs, and of meanings of words generally.

But as we have seen, the representation of the meaning of "The woman broke the vase" in ST is nothing like the structure in figure one above. Rather, it is like semantic marker number (1), which does not have the property of structural shift. So, the fact that there was no evidence of less relatedness between the subject and object NPs of such a sentence does not imply that its meaning is not represented definitionally in the mind. Moreover, from the point of view of ST it does not make sense to even talk about a shift in grammatical relations in going from the deep semantic level to the surface syntactic level since grammatical relations are not defined on the semantic level. Rather, at this level semantic roles are defined. Furthermore, even if we erroneously equate agent with subject and recipient with object, there is still no shift involved in the structures that ST provides at these levels of representation. Therefore, FGWP's finding that there was no measurable difference in relatedness judgements for the subject and object NP's in sentence pairs like 9 and 12 is consistent with ST, which does not describe sentences like 9 as involving any structural shift.

Even more damaging to the FGWP argument against definitions is a more recent study by Gergely and Bever (1987) which found that there was no measurable difference in relatedness judgements for the corresponding NPs in the following two sentences:

13. John killed Harry.

14. John caused Harry to die.

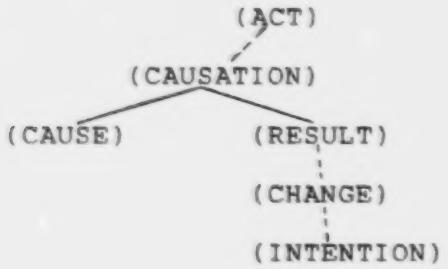
What this shows is that relatedness judgements are not sensitive to the type of structural shift FGWP assume. In fact, Gergely and Bever found that relatedness judgements were sensitive to certain aspects of the meanings of words. For example, they found that a verb whose meaning included the concept of an interaction between the referents of the subject and object which resulted in a change in intention by the referent of the object contributed to an increase in the relatedness scores for the subjects and objects. The following pair of sentences is a relevant example:

14. After the plane landed safely, the air controller allowed the assistant to make the phone call.

15. After the plane landed safely, the air controller got the assistant to make the phone call.

"The air controller" and "the assistant" were judged to be more strongly related in 15 than in 14, even though these sentences both have the same underlying syntactic structure.

Now ST can explain such a finding on the basis of the existence of a structure like the following for the verbs with higher relatedness measures:



The point is that a theory that does not allow for internal structure in the meanings of words cannot mark verbs of this type in any but an ad hoc fashion.

Finally, recent work of Johnson-Laird (1987) has found evidence for the existence of component concepts in the dictionary entries of word meanings. A theory which says that word meanings are represented as having internal structure is consistent with this finding. There is no need to assume that such concepts are accessed separately in understanding words. Rather, a view which says that word meanings, represented with internal structure, are accessed as one single structure made up of several parts is more plausable, given the evidence, and is perfectly consistent with the definitional view supported here.

References

Bowerman, M. (1974) Learning the Structure of Causative Verbs: A Study in the relationship of Cognitive, Semantic, and Syntactic development. In Papers and Reports on Child Language Development, no. 8, pp. 142-78.

Bowerman, M. (1982) Evaluating competing linguistic models with language acquisition data: Implication of developmental errors with causative verbs. Quaderni di Semantica, III (1), 1-71.

Fodor,J., Bever, T., and Garrett, M. (1974) The Psychology of Language. McGraw-Hill, New York.

Fodor, J. D., Garrett, M., Walker, E. and Parkes, C. (1980) Against Definitions. Cognition, 8, 263-367.

Fodor, J. D., Fodor, J. A. and Garrett, M. (1975) The Psychological Unreality of Semantic Representations. Linguistic Inquiry, 6, 515-531.

Fodor, J. A. (1981) Representations: Philosophical Essays on the Foundations of Cognitive Science. MIT Press, Cambridge, Massachusetts.

Gergely, G. and Bever T. (1986) Relatedness Intuitions and the Mental Representation of Causative Verbs in Adults and Children. Cognition, 23, 211-277.

Gonsalves, R. (1984) The Validity of Definitions. Ph.D. Dissertation, The City University New York.

Johnson-Laird, P. N. (1987) The Mental Representation of the Meaning of Words. Cognition, 25, pp. 190-211.

Katz, J. (1977a) Propositional Structure and Illocutionary Force. Thomas Y. Crowell Co., New York.

Katz, J. (1972) Semantic Theory. Harper and Row, New York.

Ravin, Y. (1987) A Decompositional Approach to Predicates Denoting Events. Ph.D. Dissertation, The City University of New York.